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Certifications

WBENC: 237019 **HUB:** 1752439743100-86536 **DBE:** VN 20657
NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX **El Paso:** T104704221-08-TX **Midland:** T104704392-08-TX
LELAP-02003 LELAP-02002
Kansas E-10317

Analytical and Quality Control Report

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Report Date: April 16, 2009

Work Order: 9032619



Project Name: HELSTF Long-Term Supplemental List Groundwater

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
191322	HLSF-0148-DRW-009-0309	water	2009-02-24	10:06	2009-03-24

Comment(s)

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 8 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Notes:

For inorganic analyses, the term MQL should actually read PQL.

Standard Flags

- U** - Not detected. The analyte is not detected above the SDL.
- J** - Estimated. The analyte is positively identified and the value is approximated between the SDL and MQL.
- B** - The sample contains less than ten times the concentration found in the method blank.
- JB** - The analyte is positively identified and the value is approximated between the SDL and MQL.
The sample contains less than ten times the concentration found in the method blank.
The result should be considered non-detect to the SDL.



Dr. Blair Leftwich, Director

Case Narrative

Samples for project HELSTF Long-Term Supplemental List Groundwater were received by TraceAnalysis, Inc. on 2009-03-24 and assigned to work order 9032619. Samples for work order 9032619 were received intact at a temperature of 8.0 deg. C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
Chromium, Hexavalent	SM 3500-Cr B	49567	2009-03-25 at 09:50	58034	2009-03-25 at 09:50
Cr, Dissolved	S 6010B	49600	2009-03-30 at 09:59	58118	2009-03-31 at 10:12
Cr, Total	S 6010B	49638	2009-03-31 at 09:51	58149	2009-04-01 at 10:44

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 9032619 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 191322 - HLSF-0148-DRW-009-0309

Laboratory: El Paso

Analysis: Chromium, Hexavalent

QC Batch: 58034

Prep Batch: 49567

Analytical Method: SM 3500-Cr B

Date Analyzed: 2009-03-25

Sample Preparation: 2009-03-25

Prep Method: N/A

Analyzed By: MD

Prepared By: MD

Parameter	Flag	SDL	SQL	Method	Units	Dilution	SDL	SQL	MDL
		Based	Based	Blank				(Unadjusted)	(Unadjusted)
		Result	Result	Result					
Hexavalent Chromium		0.0240	0.0240	<0.00594	mg/L	1	0.00594	0.0125	0.00594

Sample: 191322 - HLSF-0148-DRW-009-0309

Laboratory: Lubbock

Analysis: Cr, Dissolved

QC Batch: 58118

Prep Batch: 49600

Analytical Method: S 6010B

Date Analyzed: 2009-03-31

Sample Preparation: 2009-03-30

Prep Method: S 3005A

Analyzed By: RR

Prepared By: KV

Parameter	Flag	SDL	SQL	Method	Units	Dilution	SDL	SQL	MDL
		Based	Based	Blank				(Unadjusted)	(Unadjusted)
		Result	Result	Result					
Dissolved Chromium		0.140	0.140	<0.000583	mg/L	1	0.000583	0.001	0.000583

Sample: 191322 - HLSF-0148-DRW-009-0309

Laboratory: Lubbock

Analysis: Cr, Total

QC Batch: 58149

Prep Batch: 49638

Analytical Method: S 6010B

Date Analyzed: 2009-04-01

Sample Preparation: 2009-03-31

Prep Method: S 3010A

Analyzed By: RR

Prepared By: KV

Parameter	Flag	SDL	SQL	Method	Units	Dilution	SDL	SQL	MDL
		Based	Based	Blank				(Unadjusted)	(Unadjusted)
		Result	Result	Result					
Total Chromium		1.98	1.98	<0.000583	mg/L	1	0.000583	0.005	0.000583

Method Blank (1)

QC Batch: 58034

Prep Batch: 49567

Date Analyzed: 2009-03-25

QC Preparation: 2009-03-25

Analyzed By: MD

Prepared By: MD

continued ...

method blank continued . . .

Parameter	Flag	Result	Units	Reporting Limits
Parameter	Flag	Result	Units	Reporting Limits
Hexavalent Chromium		<0.0119	mg/L	0.00594

Method Blank (1)QC Batch: 58118
Prep Batch: 49600Date Analyzed: 2009-03-31
QC Preparation: 2009-03-30Analyzed By: RR
Prepared By: KV

Parameter	Flag	Result	Units	Reporting Limits
Dissolved Chromium		<0.000583	mg/L	0.000583

Method Blank (1)QC Batch: 58149
Prep Batch: 49638Date Analyzed: 2009-04-01
QC Preparation: 2009-03-31Analyzed By: RR
Prepared By: KV

Parameter	Flag	Result	Units	Reporting Limits
Total Chromium		<0.000583	mg/L	0.000583

Laboratory Control Spike (LCS-1)QC Batch: 58118
Prep Batch: 49600Date Analyzed: 2009-03-31
QC Preparation: 2009-03-30Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Chromium	0.103	mg/L	1	0.100	<0.000583	103	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Chromium	0.104	mg/L	1	0.100	<0.000583	104	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)QC Batch: 58149
Prep Batch: 49638Date Analyzed: 2009-04-01
QC Preparation: 2009-03-31Analyzed By: RR
Prepared By: KV

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Chromium	0.103	mg/L	1	0.100	<0.000583	103	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Chromium	0.104	mg/L	1	0.100	<0.000583	104	85 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 191321QC Batch: 58034
Prep Batch: 49567Date Analyzed: 2009-03-25
QC Preparation: 2009-03-25Analyzed By: MD
Prepared By: MD

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Hexavalent Chromium	0.596	mg/L	1.11	0.556	0.031	102	80.1 - 118

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Hexavalent Chromium	0.600	mg/L	1.11	0.556	0.031	102	80.1 - 118	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 191096QC Batch: 58118
Prep Batch: 49600Date Analyzed: 2009-03-31
QC Preparation: 2009-03-30Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Dissolved Chromium	0.131	mg/L	1	0.100	0.045	86	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Dissolved Chromium	0.128	mg/L	1	0.100	0.045	83	75 - 125	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 191156QC Batch: 58149
Prep Batch: 49638Date Analyzed: 2009-04-01
QC Preparation: 2009-03-31Analyzed By: RR
Prepared By: KV

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Total Chromium	0.126	mg/L	1	0.100	0.023	103	75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Total Chromium	0.131	mg/L	1	0.100	0.023	108	75 - 125	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (CCV-1)

QC Batch: 58034

Date Analyzed: 2009-03-25

Analyzed By: MD

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hexavalent Chromium		mg/L	0.500	0.500	100	90 - 110	2009-03-25

Standard (CCV-2)

QC Batch: 58034

Date Analyzed: 2009-03-25

Analyzed By: MD

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hexavalent Chromium		mg/L	0.500	0.508	102	90 - 110	2009-03-25

Standard (ICV-1)

QC Batch: 58118

Date Analyzed: 2009-03-31

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	0.991	99	90 - 110	2009-03-31

Standard (CCV-1)

QC Batch: 58118

Date Analyzed: 2009-03-31

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Chromium		mg/L	1.00	1.01	101	90 - 110	2009-03-31

Standard (ICV-1)

QC Batch: 58149

Date Analyzed: 2009-04-01

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	1.02	102	90 - 110	2009-04-01

Standard (CCV-1)

QC Batch: 58149

Date Analyzed: 2009-04-01

Analyzed By: RR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Chromium		mg/L	1.00	1.01	101	90 - 110	2009-04-01

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**Analyte List – HELSTF Long-term Groundwater Monitoring
Supplemental Sampling List**

CFW-01, CFW-02, CFW-03, CFW-04, DRW-06, DRW-08, DRW-09, DRW-10, DRW-11, HCF-02, HCF-03, HMW-07, HMW-12, HMW-14, HMW-26, HMW-28, HMW-31, HMW-53, DRW-14, DRW-15, DRW-17, HELSTF-01, HMW-16, HMW-42, HMW-54, HMW-55, HMW-61, HMW-62, HMW-63, HMW-64, HMW-65

Parameter		Reference Method	Container	Maximum hold time	Preservative
Water Quality	Conductivity	Field measured with YSI and turbidimeter	NA	NA	NA
	pH				
	Temperature				
	Dissolved Oxygen				
	ORP				
	Turbidity				
Organics	VOCs	8260	40-mL VOAs (3)	14 days	HCl, pH<2 Chill to 4 °C
Total Metals	Total Chromium	6010	500-mL polyethylene	6 months	HNO ₃ , pH<2 Chill to 4 °C
	Hexavalent Chromium	SM 3500-Cr D	250-mL polyethylene	24 hours	Chill to 4 °C
Dissolved Metals	Dissolved Chromium	6010	500-mL polyethylene	6 months	Field Filter HNO ₃ , pH<2 Chill to 4 °C

**Analyte List – HELSTF Long-term Groundwater Monitoring
Supplemental Sampling List (LNAPL)**

**Product Sampling
HCF-03 and HCF-07**

Parameter		Reference Method	Container	Maximum hold time	Preservative
LNAPL (product)	VOCs		500-mL polyethylene		
	simulated distillation				
	viscosity				
	density				
	specific gravity				
	surface tension				